



**MARYLAND ASSOCIATION OF MUNICIPAL
WASTEWATER AGENCIES, INC.**

**VIRGINIA ASSOCIATION OF MUNICIPAL
WASTEWATER AGENCIES, INC.**



MEMORANDUM

TO: Jeni Keisman, CBPO, Monitoring Analyst, University of Maryland Center for Environmental Science

FROM: V/MAMWA CBP Team

CC: Rich Batiuk, CBPO, Associate Director, U.S. EPA, Region 3

DATE: June 19, 2009

RE: Review of Reference Curve Issues

This memorandum provides the recommendations of the Virginia and Maryland Associations of Municipal Wastewater Agencies (V/MAMWA) on the Chesapeake Bay Program Office's review of reference curve issues. Provided as support for V/MAMWA's recommendations, please also see the attached Technical Memorandum from Clifton Bell, Malcolm Pirnie ("Review of CFD and Reference Curve Revisions").

Reference curves are critical to interpretation of water quality standards and the development of the Bay TMDL. As such, we fully support and encourage the CBPO's efforts towards making improvements to the ones that are presently published. Since the latest Criteria and Analysis (CAP) Workgroup meeting on this subject (May 13, 2009) we have had the opportunity to conduct additional analysis on the data. The attachment provides the details of our analysis and associated recommendations. We would ask that the CPBO consider our recommendations not only during the discussion of this issue, but also during any future discussions regarding chlorophyll-a. The major recommendations we offer are summarized below:

- **The CBPO should perform a sensitivity analysis on the reference curve to the data screening criteria.** In defining "healthy" and "degraded" segments for the reference curve analysis, the CBPO has screened segments-periods based upon a somewhat arbitrary minimum sample size and maximum standard deviation. Changing the data screening criteria even slightly has a potentially significant impact on the resulting reference curves, especially if the 100th percentile-based reference curve is used. The data screening criteria might also lead to underestimation of error assessment rates, by excluding from the analysis segment-periods that might otherwise be found to be false positive or negatives.

V/MAMWA recommends that the CBPO further investigate the impacts of slight modifications of the screening criteria before finalizing its approach. All segment-periods that can be objectively considered healthy or degraded should be included in the analysis. Relatedly, the evaluation of false positive/negative assessment rates should consider the error rates associated with segment-periods that would have been included if slightly different data screening criteria were used.

- **The CBPO should consider an area-under-the-curve approach as a viable alternative for determination of attainment status (versus the current used point approach).** As the attached Technical Memorandum explains, an under-the-curve approach would inherently provide a more balanced review of false positive and false negative attainment results.

We understand that the Bay Program's Scientific and Technical Advisory Committee (STAC) will be reviewing this issue on a very abbreviated schedule and agree that the review is necessary.

We would like to make our team available should you have any questions regarding the attached Technical Memo. Please feel free to contact Clifton Bell at Malcolm Pirnie or Will Hunley at Hampton Roads Sanitation District. Clifton can be reached by phone at (757) 873-4465 or by e-mail at CBell@Pirnie.com. Will can be reached by phone at (757) 460-4252 or by e-mail at WHunley@HRSD.com.

Thank you for your consideration of this important matter and for providing us with the data that made this analysis possible.

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